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advantage is, that when made to compensate for any two distant temperatures, such, for instance, as 60° and 90°, or for 30° and 60°, I have found the compensation equally perfect in the lowest temperature which I have been able to obtain, or in the highest that I could risk the chronometer in, and sensibly the same in all intermediate temperatures. I have subjected chronometers with this description of balance to temperatures as high as 124° and as low as 20°, and whenever a loss has been found at one extreme, a tendency to gain at the other extreme has invariably presented itself. Under these circumstances, and as I understand from Mr. Shepherd that he applies this description of balance to all the chronometers which he now makes, pocket as well as box, I am anxious to make it known that chronometer-makers and the public may avail themselves of it if they think fit."*

Description of a small Transit-room, with Section and Plan.

By Mr. Dell.

The dimensions of this room are 7½ feet in the meridian, 5½ feet wide, and 6½ feet high. By placing the pier and window-slits a good deal on one side, Mr. Dell finds he has room enough for the clock and a desk.

The instrument,—a 30-inch transit by Jones,—stands on a stout stone, resting on a brick pier, which descends 2½ feet below the ground. The building itself is of wood, which, being screwed together, can be taken apart and set up again in a very short time, if necessary. The cost, including labour and materials, did not exceed 6*l.*

Mr. Dell is well satisfied with the steadiness of the instrument.

Before placing the transit in the meridian, Mr. Dell observed η *Ursæ Majoris* and γ *Draconis* on the prime vertical, and deduced, as a mean result, Lat. 51° 48′ 54″·7 N.

The observatory was found, by measurement, to be 522 feet south and 295·5 feet east of Aylesbury spire, or 5″·1 and $0^s{\cdot}31$ respectively. Adopting the data of the survey, viz.—

N. Lat. = 51° 49′ 1″·0 and $3^m\ 17^s{\cdot}07$ W.,†

Mr. Dell's observatory is in

Lat. 51° 48′ 55″·9 N. and Long. 3^m 16·76 W.

Mr. Dell also finds,—

Hartwell Observatory	4679 feet South,	6842·8 North of Aylesbury Spire	
Stone Observatory	6577	——	11330·0 ——

The Rev. J. B. Reade recommends that the eyehole of the ordinary negative, or Huyghenian, eyepiece should be much reduced

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* "I hope shortly to have an opportunity of testing this balance in the extreme temperatures of Cambridge, U.S."

† Is this the longitude of the published survey, in which an erroneous figure of the earth was used, or a corrected longitude? The difference is about $0^s{\cdot}8$.

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in size, when the telescope is used for viewing the sun. He finds that, with a small eyehole, such as is necessary in the Gregorian telescope, the whole aperture of the object-glass may be used without endangering the dark shade.* The eyehole should be placed where an image of the object-glass is formed by the eyepiece, or, what is the same thing, where the axes of the different pencils cross each other. The aperture of the hole should not be less than the image formed by the object-glass, and need not be larger. Mr. Reade finds, from actual experience, that this position and limitation of the eyehole greatly improves the definition of the telescope for all celestial objects.

Extract of a Letter from Captain Hardy to Dr. Lee.

"I wish to call your attention to four remarkable spots, all belonging to the same mass, which are now (May 8) passing across the sun's disc. They entered his upper limb on the 29th or 30th of April, a little to the eastward of his north pole. They proceeded southward in nearly a straight line, and the principal spot crossed his equator about May 4. They are now approaching the lower limb, and are, at $3^h\ 30^m$ this day, two-thirds of the way down. The form of this mass is singular, and in many respects different from anything I have seen before."

A series of drawings of the sun has been forwarded from Poona by Capt. Jacob. Capt. Jacob, we are informed, has been appointed to succeed the late Mr. Taylor at the Observatory of Madras.†

Lunar Theory.

It will be remembered that in the investigation of the correction of the Elements of the Moon's Orbit required by the Greenwich Lunar Observations, the Astronomer Royal pointed out the following term as not recognised by theory but of undoubted existence :

$$\text{Inequality in the Moon's Latitude} = +2''{\cdot}17 \cos u\,;$$

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* Mr. Reade is of opinion that the thermal rays, in a refracting telescope, do not follow the same course as the illuminating rays; that they are considerably diffused at the eyehole, and that a large portion is stopped there when the eyehole is small. Have any experiments been made to ascertain the path of thermal rays when transmitted through an achromatic object-glass and through different kinds of glass?

† The Editor would suggest to the observers of solar spots the necessity of being very careful and specific in their *measures*. No safe conclusion can be drawn from general impressions or vague descriptions. The situations of the spots should be referred distinctly and by measure to the limbs or centre.

A guess has been hazarded that the spots are not attached to the sun, but are rather of the nature of planets or comets revolving round him. It need scarcely be stated here that there is no probability in favour of this supposition, which was exploded by Galileo on satisfactory grounds. Besides his reasons, the spots cannot be *free* bodies *near* the sun, their motions are too slow; while the absence of parallax proves that the spots cannot be near the earth, the only position which they *could* occupy to satisfy the slow motion. Every intelligible account of the solar spots seems to confirm Sir William Herschel's hypothesis, that they are variable openings in the luminous atmosphere of the sun.

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